

Matthew A. Kenworthy

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Education

- 1995-1999 **PhD**
Institute of Astronomy, Cambridge University, United Kingdom.
Thesis: '*The Development of New Techniques for Integral Field Spectroscopy in Astronomy*'
Advisor: Ian R. Parry
- 1992-1995 **BA (Hons) in Physics**
University of Oxford, United Kingdom
Third Year Options in Astronomy and Optics

Employment

- 2010-present **Assistant Professor**
Leiden Observatory, The Netherlands.
- 2007-2009 **Assistant Astronomer**
Steward Observatory, USA.
- 2003-2007 **Instrument Scientist for the MMT AO System**
Steward Observatory, USA.
- 2001-2003 **Postdoctoral Research Associate**
University of Cincinnati, USA.
- 1999-2001 **Postdoctoral Research Associate**
Steward Observatory, USA.

Research Funding

- 2009-2011 **NSF AST ATI - P.I. Matthew Kenworthy**
US\$433K over two years
'*Thermal Imaging of Extrasolar Planets with the LBT*'
- 2008-2010 **NSF AST ATI - (as Co-I) P.I. Johnan Codona**
US\$459K over two years
'*Adaptive Halo Suppression for High-contrast mid-IR imaging*'
- 2005-2009 **NASA TPF Foundation Science - P.I. Matthew Kenworthy**
US\$330K award over 4 years
'*Detecting exo-Jupiters through Focal Plane Wavefront Sensing*'
- 2003-2005 **Chandra Cycle 4 - Proposal 4200417 - P.I. Marc Gagne**
US\$12K support for Near IR Observations
'*Deep Inside the Lagoon Nebula*'

Refereed Papers

1. Mamajek, E. E., Quillen, A. C., Pecaut, M. J., Moolekamp, F., Scott, E. L., Kenworthy, M. A., Collier Cameron, A., and Parley, N. R., "*Planetary Construction Zones in Occultation: Discovery of an Extrasolar Ring System Transiting a Young Sun-like Star and Future Prospects for Detecting Eclipses by Circumsecondary and Circumplanetary Disks*"
2012, AJ, 143, 72
2. Quanz, S. P., Kenworthy, M. A., Meyer, M. R., Girard, J. H. V., and Kasper, M., "*Searching for Gas Giant Planets on Solar System Scales: VLT NACO/APP Observations of the Debris Disk Host Stars HD172555 and HD115892*"
2011, ApJ, 736, L32
3. Thalmann, C., and 12 colleagues, "*Piercing the Glare: A Direct Imaging Search for Planets in the Sirius System*"
2011, ApJ, 732, L34
4. Quanz, S. P., Meyer, M. R., Kenworthy, M. A., Girard, J. H. V., Kasper, M., Lagrange, A.-M., Apai, D., Boccaletti, A., Bonnefoy, M., Chauvin, G., Hinz, P. M., and Lenzen, R., "*First Results from Very Large Telescope NACO Apodizing Phase Plate: 4 μm Images of The Exoplanet β Pictoris b*"
2010, ApJ, 722, L49
5. Hinz, P. M., Rodigas, T. J., Kenworthy, M. A., Sivanandam, S., Heinze, A. N., Mamajek, E. E., and Meyer, M. R., "*Thermal Infrared MMTAO Observations of the HR8799 Planetary System*"
2010, ApJ, 716, 417
6. Heinze, A. N., Hinz, P. M., Kenworthy, M., Meyer, M., Sivanandam, S., and Miller, D., "*Constraints on Long-period Planets from an L'- and M-band Survey of Nearby Sun-like Stars: Modeling Results*"
2010, ApJ, 714, 1570
7. Heinze, A. N., Hinz, P. M., Sivanandam, S., Kenworthy, M., Meyer, M., and Miller, D., "*Constraints on Long-period Planets from an L'- and M-band Survey of Nearby Sun-like Stars: Observations*"
2010, ApJ, 714, 1551
8. Mamajek, E. E., Kenworthy, M. A., Hinz, P. M., and Meyer, M. R., "*Discovery of a Faint Companion to Alcor Using MMT/AO 5 μm Imaging*"
2010, AJ, 139, 919
9. Schuster, M. T., and 8 colleagues, "*Imaging the Cool Hypergiant NML Cygni's Dusty Circumstellar Envelope with Adaptive Optics*"
2009, ApJ, 699, 1423
10. Kenworthy, M. A., Mamajek, E. E., Hinz, P. M., Meyer, M. R., Heinze, A. N., Miller, D. L., Sivanandam, S., and Freed, M., "*MMT/AO 5 μm Imaging Constraints on the Existence of Giant Planets Orbiting Fomalhaut at $\sim 13\text{-}40$ AU*"
2009, ApJ, 697, 1928

11. Liu, W. M., Hinz, P. M., Hoffmann, W. F., Brusa, G., Miller, D., and Kenworthy, M. A., "*Observations of Main-Sequence Stars and Limits on Exozodiacal Dust with Nulling Interferometry*"
2009, ApJ, 693, 1500
12. Heinze, A. N., Hinz, P. M., Kenworthy, M., Miller, D., and Sivanandam, S., "*Deep L'- and M-band Imaging for Planets around Vega and ϵ Eridani*"
2008, ApJ, 688, 583
13. Skemer, A. J., Close, L. M., Hinz, P. M., Hoffmann, W. F., Kenworthy, M. A., and Miller, D. L., "*Evidence for Misaligned Disks in the T Tauri Triple System: 10 μ m Superresolution with MMTAO and Markov Chains*"
2008, ApJ, 676, 1082
14. Biller, B. A., and 13 colleagues, "*An Imaging Survey for Extrasolar Planets around 45 Close, Young Stars with the Simultaneous Differential Imager at the Very Large Telescope and MMT*"
2007, ApJS, 173, 143
15. Pavlenko, Y. V., Jones, H. R. A., Martín, E. L., Guenther, E., Kenworthy, M. A., and Zapatero Osorio, M. R., "*Lithium in LP944-20*"
2007, MNRAS, 380, 1285
16. Kenworthy, M. A., Codona, J. L., Hinz, P. M., Angel, J. R. P., Heinze, A., and Sivanandam, S., "*First On-Sky High-Contrast Imaging with an Apodizing Phase Plate*"
2007, ApJ, 660, 762
17. Liu, W. M., Hinz, P. M., Meyer, M. R., Mamajek, E. E., Hoffmann, W. F., Brusa, G., Miller, D., and Kenworthy, M. A., "*Observations of Herbig Ae Disks with Nulling Interferometry*"
2007, ApJ, 658, 1164
18. Hinz, P. M., Heinze, A. N., Sivanandam, S., Miller, D. L., Kenworthy, M. A., Brusa, G., Freed, M., and Angel, J. R. P., "*Thermal Infrared Constraint to a Planetary Companion of Vega with the MMT Adaptive Optics System*"
2006, ApJ, 653, 1486
19. Pindor, B., and 26 colleagues, "*SDSS J102111.02+491330.4: A Newly Discovered Gravitationally Lensed Quasar*"
2006, AJ, 131, 41
20. Hanson, M. M., Kudritzki, R.-P., Kenworthy, M. A., Puls, J., and Tokunaga, A. T., "*A Medium Resolution Near-Infrared Spectral Atlas of O and Early-B Stars*"
2005, ApJS, 161, 154
21. Liu, W. M., Hinz, P. M., Hoffmann, W. F., Brusa, G., Miller, D., and Kenworthy, M. A., "*Resolved Mid-Infrared Emission around AB Aurigae and V892 Tauri with Adaptive Optics Nulling Interferometric Observations*"
2005, ApJ, 618, L133
22. Liu, W. M., and 9 colleagues, "*Adaptive Optics Nulling Interferometric Constraints on the Mid-Infrared Exozodiacal Dust Emission around Vega*"
2004, ApJ, 610, L125

23. Kenworthy, M. A. and Hanson, M. M., *"Minimizing Strong Telluric Absorption in Near-Infrared Stellar Spectra"*
2004, PASP, 116, 97
24. Kenworthy, M. A. and Hinz, P. M., *"Spectrophotometry with a Transmission Grating for Detecting Faint Occultations"*
2003, PASP, 115, 322
25. Tothill, N. F. H., White, G. J., Matthews, H. E., McCutcheon, W. H., McCaughrean, M. J., and Kenworthy, M. A., *"The Structure and Evolution of the Lagoon Nebula. I. Submillimeter Continuum and CO Line Mapping"*
2002, ApJ, 580, 285
26. Ogley, R. N., Chaty, S., Crocker, M., Eyres, S. P. S., Kenworthy, M. A., Richards, A. M. S., Rodríguez, L. F., and Stirling, A. M., *"A search for radio emission from Galactic supersoft X-ray sources"*
2002, MNRAS, 330, 772
27. Kenworthy, M., and 10 colleagues, *"Gliese 569B: A Young Multiple Brown Dwarf System?"*
2001, ApJ, 554, L67
28. Kenworthy, M. A., Parry, I. R., and Taylor, K., *"SPIRAL Phase A: A Prototype Integral Field Spectrograph for the Anglo-Australian Telescope"*
2001, PASP, 113, 215
29. Kenworthy, M. A., *"The development of new techniques for integral field spectroscopy in astronomy"*
2000, Obs, 120, 81

SPIE Proceedings

Please note: it is common for instrumentation papers to be published in SPIE proceedings. These papers reflect final references and are commonly cited as such, with no subsequent related articles appearing in the refereed science journals.

1. Kenworthy, M. A., Quanz, S. P., Meyer, M. R., Kasper, M. E., Lenzen, R., Codona, J. L., Girard, J. H. V., and Hinz, P. M., *"An apodizing phase plate coronagraph for VLT/NACO"*
2010, arXiv, arXiv:1007.3448
2. Kenworthy, M. A., Sheinis, A., and Buckley, D. A. H., *"Adaptive optics for the SALT"*
2008, SPIE, 7015
3. Codona, J. L., Kenworthy, M. A., and Lloyd-Hart, M., *"A novel WFS technique for high-contrast imaging: Phase Sorting Interferometry (PSI)"*
2008, SPIE, 7015
4. Wilson, J. C., and 9 colleagues, *"LMIRcam: an L/M-band imager for the LBT combined focus"*
2008, SPIE, 7013
5. Kenworthy, M. A., Hinz, P. M., Sivanandam, S., Breuninger, A. H., and Low, F. J., *"A visible/infra-red low noise fast readout wavefront sensor for all-sky adaptive optics"*
2006, SPIE, 6276

6. Kenworthy, M. A., Hinz, P. M., Angel, J. R. P., Heinze, A. N., and Sivanandam, S., "*Whack-a-speckle: focal plane wavefront sensing in theory and practice with a deformable secondary mirror and 5-micron camera*"
2006, SPIE, 6272
7. Codona, J. L., Kenworthy, M. A., Hinz, P. M., Angel, J. R. P., and Woolf, N. J., "*A high-contrast coronagraph for the MMT using phase apodization: design and observations at 5 microns and $2 \lambda/D$ radius*"
2006, SPIE, 6269
8. Kenworthy, M. A., and 14 colleagues, "*Scientific results from the MMT Natural Guide Star Adaptive Optics System*"
2004, SPIE, 5490, 351
9. Miller, D. L., Brusa, G., Kenworthy, M. A., Hinz, P. M., and Fisher, D. L., "*Status of the NGS adaptive optic system at the MMT Telescope*"
2004, SPIE, 5490, 207
10. Brusa, G., Miller, D. L., Kenworthy, M. A., Fisher, D. L., and Riccardi, A., "*MMT-AO: two years of operation with the first adaptive secondary*"
2004, SPIE, 5490, 23
11. Reynolds, R. O., Lloyd-Hart, M., Lesser, M. P., Kenworthy, M. A., and Ge, J., "*Progress toward science results with the ACES spectrograph*"
2003, SPIE, 4841, 1705
12. Angel, J. R. P., Burge, J. H., Hege, E. K., Kenworthy, M. A., and Woolf, N. J., "*Stretched membrane with electrostatic curvature (SMEC): a new technology for ultralightweight space telescopes*"
2000, SPIE, 4013, 699
13. Lloyd-Hart, M., and 9 colleagues, "*Adaptive optics for the 6.5-m MMT*"
2000, SPIE, 4007, 167
14. Mcguire, P. C., and 14 colleagues, "*Construction and testing of the wavefront sensor camera for the new MMT adaptive optics system*"
1999, SPIE, 3762, 269
15. Rhoadarmer, T. A., Mcguire, P. C., Hughes, J. M., Lloyd-Hart, M., Angel, J. R. P., Schaller, S., and Kenworthy, M. A., "*Laboratory adaptive optics system for testing the wavefront sensor for the new MMT*"
1999, SPIE, 3762, 161
16. Mcguire, P. C., and 29 colleagues, "*Full-system laboratory testing of the F/15 deformable secondary mirror for the new MMT adaptive optics system*"
1999, SPIE, 3762, 28
17. Ennico, K. A., and 13 colleagues, "*Cambridge OH suppression instrument (COHSI): status after first commissioning run*"
1998, SPIE, 3354, 668

18. Mackay, C. D., and 8 colleagues, "*Infrared imaging and spectroscopy with HAWAII and PICNIC arrays*"
1998, SPIE, 3354, 14
19. Kenworthy, M. A., Parry, I. R., and Taylor, K., "*Integral field units for SPIRAL and COHSI*"
1998, SPIE, 3355, 926
20. Parry, I. R., Kenworthy, M., and Taylor, K., "*SPIRAL Phase A: a prototype integral field spectrograph for the AAT*"
1997, SPIE, 2871, 1325